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Agriculture.
EXPERIMENTAL
FARM.

was the main cause of some of the smallest yields of American cotton. Besides cotton, a fine crop of sugarcane was obtained where the native growers had repeatedly failed, and successful attempts were made to get a market oil from sunflower. The total cost during 1874-75 amounted to £165 (Rs. 1650) and the receipts to £80 (Rs. 800), or a working loss of £85 (Rs. 850). In 1875-76 the area of the farm was raised to 109 acres all acquired at a cost of £760 (Rs. 7600) and the number of plots was raised from seven to nine. These nine plots were sown with food-grains, greens, cotton, safflower, and sunflower. The rains set in as usual and the crops promised well till August when the weather became unusually dry. Occasional showers helped the crops till October when cutting winds joined with the drought destroyed all hope of a good yield. Still some crops did fairly, but the failure of the cotton and to great extent of the wheat and gram reduced the outturn to 16s. (Rs. 8) the acre. Peruvian guano was applied to half an acre sown with potatoes and the result was a yield of nearly one ton which realized £5 16s. (Rs. 58). The total working charges including assessment were £179 (Rs. 1790) and the total net loss was £85 (Rs. 850). In 1876-77, the famine year, the wheat crop, which is generally sown after the first burst of the north-east monsoon in October, was very hurriedly put in, as it was feared that, by delay, the scanty supply of moisture in the ground might be lost. In the neighbourhood of Navalur the seed came up well, but the easterly winds dried up the half-moistened soil. The wheat straw grew stunted and weak, and the grain was very light, some fields barely yielding as much as the seed sown. Cotton sowing began about the middle of August but the crop was never promising. The sowings of American cotton in three fields kept remarkably free from blight but they were weak and stunted. The yield from two of the fields was extremely light; in fact the cotton crop of the village was almost a failure. The income amounted to £150 8s. (Rs. 1504). In consequence of these repeated failures the farm was closed from the 1st of October 1877.

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Blights are rare and never so widespread as to affect the general harvest. Cotton occasionally suffers from mildew, and the grain crops are often damaged by insects, rats, and locusts. The earliest recorded failure of rain in the whole country south of the Narbada is the great Durga Devi famine, which began in 1396 and is said to have lasted nearly twelve years. This famine was caused by the total want of seasonable rain. Almost no revenue was recovered and a large proportion of the people died.¹ In 1423 no rain fell and there was a grievous famine throughout the Deccan and the Karnátak; multitudes of cattle died from want of water. Ahmad Sháh Bahmani (1419-1431) increased the pay of his troops and opened public stores of grain for the use of the poor. In 1424 there was again a failure of rain and the country was much disturbed.² The years 1471 and 1473 are described as seasons of exceptional distress. No rain fell and no crops were sown for two years. Many died and many left the country. In the third year, when rain at last fell, scarcely

¹ Grant Duff's Maráthás, 26.² Briggs' Ferishta, II. 405.

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any one was left to till the land.¹ In 1790 the march of the Maráthás under Parashurám Bháu through Dhárwár to Maistur was accompanied by such devastation, that on its return from Maistur the victorious army almost perished from want of food. In 1791-92 there was a terrible famine, the result of a series of bad years heightened by the depredations caused by the Maráthás under Parashurám Bháu. The distress seems to have been great in Hubli, Dambal, and Kalghatgi, where the people were reduced to feeding on leaves and berries, and women and children were sold. In Dambal the rains failed for twelve years and for three years there was no tillage. From the number of unburied dead the famine is remembered as *Dogi Bára* or the Skull Famine. The distressed were said to have been relieved by the rich. Beyond seizing some stores of grain at Hubli the Peshwa's government seem to have done nothing. At Dambal grain was sold at two and a half pounds the rupee.² In 1791 between the 23rd of April and the 6th of May, the rupee price of rice was six pounds (3 *pakka shers*) at Kárur, Ránebennur, Motibennur, Háveri, Sháhánur, Kailkunda, Hubli, and Dhárwár; of gram six pounds (3 *pakka shers*) at Kárur, Motibennur, Hubli, and Dhárwár, and eight pounds (4 *pakka shers*) at Háveri, Sháhánur and Kailkunda; and of Indian millet eight pounds (4 *pakka shers*) at Kárur, Ránebennur, Motibennur, Háveri, Hubli and Dhárwár, and ten pounds (5 *pakka shers*) at Sháhánur and Kailkunda.³ The 1802-3 famine was not so much due to the irregularity of the season as to the ravages of war. The season was a fair one and the harvest would have been good but for the disturbed state of the country which prevented much land being sown and for the ruin caused by Pendhári ravages. The famine lasted for a year and the distress was deepened by large numbers of starving people pouring into the district from Pandharpur and Bijápur. On their way through Bijápur people could find neither food nor water. Their state on reaching Dhárwár was deplorable, and, without either shelter or food, they laid themselves down and died in numbers among the bushes which then grew round the fort. From the numbers of destitute who came into the district and from the widespread distress, this famine is remembered as *Byán Bára* or the Terrible Famine. Thousands of dead strewed the roads. Probably from the number of unburied bones, but, according to the local story because in their agony the dying beat their heads together, this, like the 1791-92 famine, was called *Dogi Bára* or the Skull Famine. Grain is said to have sold at 17½ to 21 pounds (5-6 *sers*) the rupee. In Hubli the rich headed by Chintámanráo Patvardhan helped the poor. The Peshwa's government seem to have afforded no relief.⁴ Between 1801 and 1832 two partial famines are recorded, in 1814 and in 1824. The 1814 famine is known as the *Bisaghi Bára* or Drought Famine. It is said to have been deepened by the disturbed state of the country, and apparently was serious only in Dambal. It lasted two months during which grain sold at twenty-four pounds (7 *shers*) the rupee. In 1824

¹ Briggs' Ferishta, II. 494.

² Col. Etheridge's Past Famines, 105.

³ Moor's Narrative of Captain Little's Detachment, 232.

⁴ Colonel Etheridge's Past Famines, 106-107.

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another short two months famine is recorded, when grain sold at forty-two pounds (62 *shers*) the rupee. It is attributed to failure of rain and seems to have extended to Belgaum. In 1832 local failure of rain and the immigration of destitute people from the country north of the Krishna caused great scarcity all over the district. The price of grain varied from 24½ pounds (7 *shers*) in Hubli to 31½ pounds (9 *shers*) in Dambal, and in Dambal some of the poorest were reduced to eating grass. The rich in Hubli, headed by Apparáo Lokhande, subscribed for the relief of the poor, and Government remitted the grain tolls. Mr. Elliot, the Collector, issued an order forbidding forestalling and regrating, and requiring the dealers to bring their grain into the market. Ponds and other useful works were begun to provide labour for the poor.

1866.

In 1866 the district was again visited by famine, the result of a succession of bad seasons. Though the rains set in late a fair harvest was looked for until August, when rain held off and grain became both dear and scarce. People who had stores of grain were unwilling to part with them. The distress was most severe in Navalgund, Ron, and Dambal. In Dambal the distress was not the result of one year's bad harvest, but of a continual failure of crops for some three or four years. Many were reduced to beggary and still more left their homes in search of food, many with the object of returning when better times came, and a few with the object of never returning. On the other hand, there was a large influx of people from Belgaum, Bijapur, and Belári. At the end of September heavy and continued rain saved the crops. To afford relief to the sufferers works not requiring skilled labour were begun in the Dhárwár, Navalgund, Ron, and Gadag sub-divisions. A special famine-works grant of £4000 (Rs. 40,000) was made by Government from local funds, and £350 (Rs. 3500) from Imperial funds. A special grant of £5000 (Rs. 50,000) was also given for the improvement of the high road from Tegur by Dhárwár to Harihar, and an advance of £1600 (Rs. 16,000) was promised to the Dhárwár municipality to improve a large reservoir in the suburbs of the town. Considerable numbers of the poor thus found employment for several months, until the harvest was gathered, which the timely late rains of September and October saved. The old and infirm, who could not work, were fed by private charity at Dhárwár, Hubli, Navalgund, Nargund, Annigeri, Basápur, Bhadrapur, Gadag, Dambal, Karajgi, Háveri, Devihosur, and Ron.¹ By December distress had disappeared. The harvest, especially the grain harvest, was the best reaped for several seasons. At Dhárwár the rupee price of Indian millet fell from twenty-one in September to seventy-three pounds in December (6-21 *shers*); of millet from eighteen to sixty-eight pounds (5½ - 19½ *shers*); and of poor rice from twenty-one to thirty-nine pounds (6 - 11½ *shers*).

1876-77.

The scanty and still more the ill-timed rainfall of 1876, 13·81 inches compared with an average of 26·39, led to failure of crops and distress

¹ Colonel Etheridge's Past Famines, 105-116.

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amounting to famine over about two-thirds of the district.¹ The north and east suffered the most. In addition to the failure of the early crops, September and October (1876) passed with only a few showers, and very little of the late crops were sown. With high grain prices, Indian millet at 16½ instead of forty-three pounds, and with little demand for field work, numbers of the poorer classes fell into distress. The need for Government help began early in September when relief works were opened and paid for out of local funds. In the hot months of 1877 (March to June), with rising prices the distress grew keener and more widespread. The failure of rain in July and August caused great anxiety and suffering, which was removed by the timely and copious rainfall of September and October. The condition of the people rapidly improved, and by the end of October distress had disappeared. At the close of November the demand for special Government help had ceased.

The following details show, month by month, the state of the district and the measures taken to relieve the destitute. In September 1876 as the rain still held off, except in the west and in lanes which could be watered, the early crops perished. Grain prices rose, *javari* being sold at Ron, about the middle of the month, at thirty-two pounds the rupee. Water was growing scarce and fodder was difficult to procure. Owing to the want of rain the fields could not be prepared for the cold-weather crops, and, early in the month, the demand for work became general, and many of the poorer classes left the district. To give employment to the destitute, the digging of the Navalgund lake, and the making of the Dambal-Hesrur road, were started. About the close of the month, a fall of rain, 2·9 inches in Dhárwár, 2·14 in Navalgund, 2·5 in Kod, and 1·5 in Karajgi, did much good to what scanty early crops were standing. Elsewhere, though the fall was lighter, the people were encouraged to sow late crops, and drinking water became available in many places where it was urgently wanted. In spite of this relief, the demand for employment continued general. October passed with only a few showers. In Ron and Dhárwár, where the fall was good, late crops were sown, but the early crops everywhere grew worse, and cotton, where it was sown, was fast perishing. *Javari* prices rose to about thirty pounds the rupee, and in Dhárwár, Karajgi, and Gadag many dealers refused to sell. Besides the want of grain, there was in some places great scarcity of drinking water and fodder. Local fund works gave employment to many of the destitute, and others, especially in Ranebennur and Gadag, were supported by the well-to-do. On the 17th, Government placed a sum of £2500 (Rs. 25,000) at the Collector's disposal for charitable relief. In November little rain fell, and there was no improvement in the crops. People took their cattle and left in large numbers for the Kánara forests. There was great suffering especially in Ron where many villages were deserted. Fodder and water were scarce, and, especially in the north, large numbers of cattle died. In spite of grain imports from

¹ The estimate was in area 3000 square miles of a total of 4564, and in population 630,000 out of 988,037.

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Sholápur, *javári* rose from thirty to $13\frac{1}{2}$ pounds. And, though the harvesting of the early crops in the western sub-divisions gave a good deal of enjoyment, the daily number on relief works rose from 4000 to 21,361. Of 10,005, the average daily number for the month, 8210 were able-bodied, expected to do a full day's work and superintended ordinary public works officers, and 1795 were aged or feeble expected to do two-thirds of a day's work and superintended by *mámlatdá* and assistant collectors.¹ December passed without rain and with no change in crop prospects. Harvest work in the west was nearly over, and, though some were coming back disabled by the climate, people and cattle continued to move in large numbers to the west of the district and to the Kánara forests. Fodder rose in price and in Navalgund was very scarce. Grain was imported in large quantities, the chief difficulty being the cost of carriage, cart rates between Kárwár and Dhárwár having risen from 14s. (Rs. 7) to £1 2s. (Rs. 11). The rupee price of *javári* fell from fifteen pounds at the beginning of the month to nineteen pounds about the close. Late in the month cholera broke out in four of the western sub-divisions. The numbers of the destitute considerably increased, on public works from 8210 to 19,432, against a fall on civil works from 196 to 1011.

1877.

In January there was no rain and no change in crop prospects. Many were returning unable to stand the climate, but the migration of people and cattle to the Kánara forests and to the western sub-divisions still went on. The importation of grain continued, *javári* keeping fairly steady at eighteen pounds the rupee. In Bn, Gadag, and Navalgund fodder was scarce and people were bringing it from the Nizám's country. In the north the people suffered most from want of water. Cart rates from Kárwár to Dhárwár, after rising early in the month to £1 7s. (Rs. $13\frac{1}{2}$), fell about the end to £1 (Rs. 10), and, to help the traffic, wells were dug along some of the grain trade routes. The numbers on relief works rose, on public works from 19,432 to 30,396, against a fall on civil works from 1011 to 792. There were 184 persons on charitable relief. February passed without rain and with no change in crop prospects. There was much movement among the people. Upwards of 20,000 passed west, while many, some of them belonging to Bijápur, came back from Kánara and Belári. In spite of large grain importations, *javári* rose from $18\frac{1}{2}$ to $17\frac{1}{2}$ pounds the rupee. Fodder was extremely scarce. In parts of Gadag cattle were fed on *nimb* tree leaves, and large quantities of rice straw were brought from Kánara. Cholera continued prevalent. The numbers on public works fell from 30,396 to 26,973, against a rise on civil works from 792 to 1481; on charitable relief they rose from 184 to 257. The fall on public works and the rise on civil works was because the people left the public works owing to cholera, and,

¹ The rates of wages originally fixed for the workers were, for a man 3d. (2 as.) a day, for a woman 2½d. (1½ as.), and for a boy or girl 1½d. (1 a.) About the middle of November a sliding scale was introduced, which provided that, when prices rose over sixteen pounds the rupee, the money rate should vary with the price of grain, and that a man should always receive the price of one pound of grain in addition to one *anna*.

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Sátára, Belári, Maisur, and the Nizám's country. The sowing of the early crops was general except in some parts of Ron and Navalgund, where but little rain had fallen. The harvesting of the quick-growing crops was begun in Bankápur, Karajgi, and Ránebennur. At Mundárgi and in the western sub-divisions, the poor were earning a little by bringing green grass to market. Cart-rates from Kárwár to Dhárwár, after rising in the beginning of the month to £4 (Rs. 40), fell, about the close, to £3 4s. (Rs. 32).¹ So high were the rates that importation was almost at a stand. *Jvári* prices rose from 12½ to 10¾ pounds the rupee. The numbers on relief rose, on public works from 50,598 to 53,851, on civil works from 2371 to 3469, and on charitable relief from 3088 to 3300. July passed with only a few showers, chiefly in the west. The early crops were everywhere withering and sowing operations kept back. In Hubli, Bankápur, Ránebennur, Karajgi, and Kod the quick-growing crops were harvested. People again began to move from the east westwards. Cart-rates from Kárwár to Dhárwár rose at the beginning of the month to £4 16s. (Rs. 48), the high rates seriously interfering with grain importation. Later on men were employed to draw carts at the rate of 10s. (Rs. 5) for each bag of grain brought from the coast. This competition was most useful, and cart-rates fell to £3 4s. (Rs. 32).² Still *jvári* prices rose from ten pounds at the beginning of the month to 8½ pounds at the close. The numbers on relief fell considerably, on public works from 53,851 to 21,532, on civil works from 3469 to 2581, and on charitable relief from 3300 to 1487. This fall was probably due partly to the people's unwillingness to camp out during the rain, the huts provided being hardly ever watertight, and partly to the hope of regular field work. In August there was a considerable (2·88 inches) but ill-distributed fall of rain. In the beginning of the month the supply was very scanty, and, especially in Ránebennur and Kod in the south, the crops were perishing. The people kept moving to the west, and strangers continued to flock into the district. The importation of grain by human labour was continued, and the cart-rates from Kárwár to Dhárwár fell to £2 8s. (Rs. 24). *Jvári* prices rose from 9¼ pounds the rupee in the beginning of the month to 8½ pounds about the close. In the last days of the month more or less rain fell in every sub-division, and, except in the south, the early crops revived. In the eastern sub-divisions and in Ron the sowing of the late crops was begun. The numbers on public works slightly rose from 21,532 to 21,743, against a small fall on civil works from 2581 to 2355. On charitable relief the numbers rose from 1487 to 1982. In September an average of 7·79 inches of rain fell. The prospects of the early crops improved, but in Hángal and Kalghatgi more rain was required for the rice. The sowing of the late crops and cotton was in progress, and the crops already sown were in good condition. In some places the harvesting of the early crops was begun. Early in the month people moved towards the western sub-divisions, some passing to Kánara; but the movement soon ceased and before long they began to return. About the middle of the

¹ The rates from Dhárwár to Kárwár at these two periods were Rs. 20 and Rs. 16.

² The rates from Dhárwár to Kárwár at these two periods were Rs. 20 and Rs. 12.

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losing condition from want of food, had to be taken into relief kitchens and on to civil works. On the 14th, to help the grain traffic, grass was brought to Gadag at Government expense. In March no rain fell. Many immigrants from Bijápur and elsewhere left the district, and emigrants to the Kánara forests came back with their cattle. About the end of the month cart rates between Kárwár and Dhárwár rose to £1 6s. (Rs. 13). This greatly crippled the grain trade and the rupee price of *javári* rose from 18½ to 16½ pounds. Cholera was prevalent and increasing. The numbers of the destitute rose, on public works from 26,973 to 29,712, on civil works from 1481 to 2385, and on charitable relief from 257 to 767. During the latter part of April there was an average rainfall over the district of 2·01 inches. People continued to move about in large numbers. Some of them were strangers from Belári, Bijápur, and Bángalur; others were Dhárwár people on their way back from the Kánara forests. Ploughing was everywhere in progress. In some parts of Dhárwár, Karañgi, and Ránebennur, *baragu* *Panicum miliaceum*, *navani* *Panicum italicum*, *sáve* *Panicum miliare*, and other fast-growing crops were sown. For a time the cart rates from Kánara to Dhárwár fell to £1 4s. (Rs. 12). Soon after, as the Dhárwár bullocks were engaged in field work, carriage was difficult to get, and cart-hire from Dhárwár to Kárwár rose to £1 12s. (Rs. 16), and further checked the import of grain. The rupee price of *javári* rose from sixteen pounds at the beginning to fifteen pounds about the close of the month. Cholera, though very severe in Kalghatgi, was decreasing. The immigrants found employment in large numbers on the relief works. Relief houses, where the infirm poor were fed twice a day, were opened over the greater part of the district. The numbers on relief rose, on public works from 29,712 to 38,999, on civil works from 2385 to 3003, and on charitable relief from 767 to 1989. On the 24th, a further sum of £1000 (Rs. 10,000) was placed at the Collector's disposal for charitable relief. In May a good deal of rain fell. Except in the east and north, sowing operations went on rapidly. In the west the *baragu* and other quick-growing crops, which had been sown in April, were in good condition. In Dhárwár, Kalghatgi, Bankápur, and Hángal, rice, and at Mundárgi in Gadag *bajri* and *javári* were being sown. People from Bijápur and the eastern sub-divisions were moving west, tempted by the cheaper rate of grain and the better supply of water; others were coming into the south of the district from Belári and Maisur. In the red soil districts green grass had sprung up. But in the black soils fodder was still rising in price, and no fodder but leaves and very old straw was available. Cart-rates from Kárwár to Dhárwár rose to £2 (Rs. 20), and grain importations were very small. The rupee price of *javári* rose from fifteen to fourteen pounds. The people supplemented their supply of grain by tamarind seeds and various edible herbs, which were largely sold in the markets. Cholera continued prevalent, but was decreasing. The numbers on relief rose, on public works from 38,999 to 50,598, and on charitable relief from 1989 to 3088. On civil works there was a fall from 3003 to 2371.

In June there was an average fall of about 5·11 inches of rain. Large numbers returned to their homes in Bijápur, Belgaum,

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month, encouraged by the good prospects, grain-holders opened their grain-pits, and local *javari* began to find its way into the markets. Its competition so considerably checked grain importations, that, though cart-rates from Kárwár to Dhárwár fell about the end of the month to £1 12s. (Rs. 16), there was almost no grain traffic. *Jvâri* prices fell from nine pounds at the beginning to thirteen pounds about the close of the month. The numbers on public works rose from 21,743 to 29,290, on civil works from 2355 to 3567, and on charitable relief from 1982 to 3366. October was a month of heavy rain, with an average fall of 10·05 inches. The rice crops, which had to some extent been damaged by drought, completely recovered. The sowing of the late crops went on, but in the north it was kept back by almost constant rain. In some of the moist western lands the excessive wet mildewed the early *jvâri* and prevented it ripening, but on the whole the crops were in excellent condition. Early *rági*, *sáve*, *navani*, *baragu* and other small grain crops had been harvested and could be had in the markets at rates varying from eighteen pounds the rupee at Dhárwár to thirty-two pounds in Kod. The early crops were ripe, and people began moving west for harvest work. The condition of the people considerably improved. Food and employment were abundant, distress had disappeared, and there was almost no demand for relief. Although cart-rates from Kárwár to Dhárwár fell to £1 12s. (Rs. 16), on account of the competition of the local grain, there was no importation. About the close of the month *jvâri* prices fell from 13½ to twenty pounds the rupee. The numbers on relief fell, on public works from 29,290 to 14,879, on civil works from 3567 to 2522, and on charitable relief from 3366 to 3109. In November little rain fell. The sowing of the late crops was finished in most parts, but in places the crops were injured by insects. Over almost the whole of the district the early harvest was reaped, the reapers receiving from eleven to twelve pounds of unhusked grain a day. Prices fell from 25½ pounds in the beginning to thirty pounds the rupee about the close of the month. Employment and food were abundant, but labour was rather scarce. The numbers on relief fell, on public works from 3611 to fifty-seven, on civil works from 1623 to 108, and on charitable relief from 3109 to 1076. At the end of the month all relief works were closed. The late *jvâri* was destroyed in parts of four sub-divisions by locusts, but the crops on the whole were good. Though Government continued to offer charitable relief, the number wanting help fell from 1076 in the beginning to 122 on the 22nd of the month.

The following statement of Indian millet price and of numbers receiving relief shows that during the two last months of 1876 and the first three months of 1877 grain kept pretty steady at seventeen pounds the rupee or more than two and half times the ordinary rate; that its price rose rapidly in April, May, June, and July, till it reached 8½ pounds in August; and that it then quickly fell to 28½ in November. As early as January the numbers on relief works reached 31,188. By lowering wages and enforcing task and distance tests, in February the total was reduced to 28,454. From this it sadly advanced till in June it reached 57,320. It then declined

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to 24,098 in August, rose in September to 32,857, and again rapidly fell to 2065 in November, when the works were closed. The numbers on charitable relief rose steadily from 184 in January to 3300 in June. They then fell to 1982 in August, and, after rising to 3366 in September, fell in November to 1076, and in December to 122:

Dhárwār Famine, 1876-77.

MONTH.	AVERAGE DAILY NUMBERS.				AVERAGE RUPEE PRICES.	RAINFALL.
	Relief Works.			Charity.		
	Civil Agency.	Public Works.	Total		Jwari.	Pounds.
1876.						
November ...	1795	8210	10,005	...	16½	...
December ...	1011	19,432	20,443	...	17½	...
1877.						
January ...	792	30,396	31,188	134	18½	...
February ...	1481	26,973	28,454	257	17½	...
March ...	2385	29,712	32,097	767	17½	...
April ...	3003	38,999	42,002	1989	15½	2.01
May ...	2371	50,598	52,969	3088	14	2.21
June ...	3469	53,351	57,320	3300	11½	5.11
July ...	2581	21,532	24,113	1487	13½	5.1
August ...	2355	21,743	24,098	1982	8½	2.38
September ...	3567	29,290	32,857	3366	12	7.79
October ...	2522	14,879	17,401	3109	18½	10.05
November ...	731	1334	2065	1076	23½	14
December ...	...	...	...	122	...	...
Total	28,063	346,949	375,012	20,727	...	30.70
Average	2159	25,919	28,078	1723	...	...
Total Cost	...	Rs. 12,67,961	73,709	...	...	...
			1,341,670			

Special Measures.

The only special relief measure was helping the hand-loom weavers. In May 1877 Government sanctioned a sum of £150 (Rs. 1500) for their relief. Through their own moneylenders, who voluntarily undertook to advance them yarn and wages, weekly orders were given to the weavers. The coarse cloth manufactured was bought through the moneylenders by Government at such rates as to cover the actual cost of yarn and wages paid in advance. The outturn was used to meet the demand for cloth in the different Government offices, and also in giving clothes to destitute persons on relief works. In September 1877 this special relief was stopped.

Census.

A special census taken on the 19th of May 1877, when famine pressure was general and severe, showed that of 45,711 workers, 41,583 on public and 4128 on civil works, 25,381 belonged to the sub-divisions where the works were carried on; 13,398 belonged to different sub-divisions of the same district; 4656 were from other districts; and 2276 were from neighbouring states. As regards occupation, 2521 were manufacturers or craftsmen, 12,588 were holders or sub-holders of land, and 30,602 were labourers.

The total cost of the famine was estimated at £134,167 (Rs. 13,41,670), of which £126,796 2s. (Rs. 12,67,961) were spent on public and civil works, and £7370 18s. (Rs. 73,709) on charitable relief.

The rates of cart hire from Gadag to Kárwár varied from £1 4s. (Rs. 12) from November 1876 to February 1877 to £3 10s. (Rs. 35) from July to October 1877. In Navalgund and Ron the daily cart rates before the famine varied from 1s. 6d. to 1s. 9d. (12-14 as.). In Navalgund these rates continued till March 1877, after which from July to December, they rose as high as 4s. (Rs. 2). In Ron cart rates began to rise from the beginning of the famine (November 1876), until, towards the close of the famine, they were 2s. 6d. (Rs. 1½) or nearly double the ordinary rate. In Hubli the daily cart rates rose from 2s. 6d. in the beginning of the famine to 4s. between July and October (Rs. 1½-2), after which they fell to 3s. 6d. (Rs. 1¾) from November to December 1877. In Ránebennur the ordinary daily cart rate was 2s. (Rs. 1); except from January to March when they fell to 1s. 9d. (14 as.), the rates remained throughout as high as 3s. (Rs. 1½).

Twenty-seven relief houses were opened for periods varying according to the local distress. Except the relief house at Dhárwár which was opened in April 1877 and closed in March 1880, no relief house was open for more than a year. The times during which they remained open were at Ránebennur from January to December, at Hubli from March to December, at Naregal from the 29th of April to the 2nd of June, at Hángal, Háveri, and Bankápur from April to December, at Annibhavi from the 17th to the 31st of May, at Sudikavjarji, Álur, Betigeri, Mugod, and Biádgi, and two at Kalkeri from May to June, at Lakundi and Misrikota from May to July, at Dambal from May to October, and in Kalghatgi from May to November; at Hubli during June, at Ron from June to November, and at Navalgund from June to December; at Gadag from July to December; at Nargund from August to December, and at Tadas and Annigeri from September to November. At these houses 471,815 persons were relieved at a cost of £6232 (Rs. 62,320). The relief houses were temporary sheds, private houses, monasteries, temples, and cotton-gin factories. At Naregal seven miles south of Bankápur a private relief house was kept open from the 3rd of June to the 15th of August 1877, and 1845 persons were relieved at a cost of £92 (Rs. 920).

In addition to their ordinary duties the assistant collectors and district deputy collectors were placed in famine charge of their sub-divisions. Hubli, Kalghatgi, and Bankápur were in charge of the first assistant, Ránebennur, Karajgi, Hángal, and Kod were in charge of the second assistant, and Ron and Gadag were in charge of the district deputy collector. From April to October Navalgund and Dhárwár were placed under a special officer, Mr. E. J. Ebdon, C.S. Special relief officers were appointed at Gadag from March to October and at Bankápur from March to July. Under these officers there were mámlatdárs, clerks, and circle inspectors. Mr. Walton, the cotton inspector, was employed on civil relief works from April to November, and Mr. Young of the revenue survey from about July to October. No shops for selling grain to the poor were opened on Government account. A municipal shop was opened at Dhárwár for a few days, and at Navalgund a shop was opened between the

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Relief Staff.

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27th of October 1876 to the 20th of April 1877 out of a subscription of £500 (Rs. 5000) raised by the well-to-do.

¹ Grain was brought from Bombay through the ports of Kárwár and Kumta in North Kánara and to a small extent through Belgaum from Vengurla in Ratnágiri. Some also came by rail to Belári and from Belári by cart. Almost the whole of the imported grain was *javári*, brought by sea from Sind and by rail from Jabalpur. The Sind *javári* was bought at the ports by dealers of all classes, the largest importers being the capitalists of Hubli and Gadag, who in ordinary seasons deal in cotton. The chief grain markets were Hubli, Gadag, Dhárwár, Háveri, Bankápur, and Ránebennur. The grain was paid for largely by gold and silver. The landholders' capital in the form of ornaments poured into the markets and the goldsmiths' melting pots were going day and night. The course of trade was from the Kánara coast east and north. South Bijápur was largely fed through Dhárwár. In the northern sub-divisions of Dhárwár, Navalgund and Ron, the grain-dealers made no attempt to force prices by keeping back their stocks. At Ránebennur they refused to sell about November 1876, and to some extent in Hubli, Gadag, Bankápur, and Kalghatgi early in 1877. Importations of foreign grain forced them to open their stores. The chief special difficulty in Dhárwár was the number of immigrants, who in the first stage of the famine (September-October 1876) flocked into the western forests on the Kánara frontier, and afterwards were constantly streaming back diseased and dying. Small-pox and fever killed them in numbers. In February 1877 a special officer sent to enquire into their number and condition, reported that there were probably about 20,000 in west Dhárwár and east Kánara. They came chiefly from Bijápur, but many could speak nothing but Maráthi, and some could speak only Telugu. This migration was probably in obedience to a tradition of former famines, that water and food, bamboo seed, wild yams, and other forest produce were to be had in the *maládu* or hilly west. When the charity of the frontier villages was exhausted and the immigrants found that disease and cold gathered as many victims as hunger, and also heard of relief works, they gradually came back to the relief centres which were opened along the western frontier specially to catch them. They were employed by thousands and fed into condition by hundreds, and, on the first rainfall in May, when they began to want to go home, arrangements were made to pass them home by having stores of food at halting places on the main routes. A very large number were regularly marched in gangs. After the heavy rain in June they passed through Dhárwár and Nargund to Bijápur in a continuous stream soaked with rain and caked with mud to their middles. Their only portable property was some of the Government relief-house saucers, earth-work baskets, and here and there a stolen pickaxe. Another difficulty was the failure of bullock power to draw the grain carts from the coast after the rain fell. This failure was due to the bullocks being wanted for

¹ Mr. J. B. Richey, C. S., C.S.I.

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field work, to the bullocks not being able to stand the wet on the Sahyádris, to their not being able to draw the carts through *muram* roads deep as a ploughed field, and to bullock power being cut off from the made roads by intervening tracts of black soil. After July men to a great extent took the place of bullocks, dragging carts where there were roads, and, where carts could not travel through the roadless black soil carrying the grain on their heads. There were also difficulties in getting people to go to the particular works to which they were drafted. In some cases they received allowances to go and deserted on the road. The northern subdivisions of Ron, Navalgund, and Dhárwár suffered from want of water and some help was given for deepening wells. Putting for famine labourers was difficult to arrange; no grass could be had for thatching, and the bamboo mats or *tattis* which were used in the place of grass were not rain-proof.

Few people left the district, though thousands went from the east to the west and some passed over the frontier into North Kánara. There was some little migration into Belári and Maisur from the neighbouring villages drawn to Belári by the easy terms on which relief was given, and, in the later stage of the famine, to Maisur drawn by the nearness to their homes of some of the Maisur relief works and perhaps by more liberal treatment. Compared with 1872 the 1881 census shows a fall of 106,764 in population. The addition of the normal yearly increase of one per cent during the remaining seven years gives 175,000 as the loss of population caused by death and migration in 1876 and 1877. During the first six months of the distress the behaviour of the people was good. They were patient and reasonable, and showed many fine traits of kindly feeling. This lasted so long as families kept together. Towards the end of the hot weather (May 1877) early rain fell, the people were unsettled by the hope of field work and of a speedy end to their miseries, and those who had not submitted to the steady discipline of relief work but were living partly on alms grew demoralized. Families began to break, men left their wives and children, and the lazy used every device to get relief without giving work. The esculent vegetables that sprang up helped to stave off hunger from those who would not work. Private charity grew less and less, and at last when in July there were prospects of another year of famine it ceased. From these causes mendicancy, combined among the Lambánis with thieving and housebreaking, increased through May, June, July, and August. Especially in July and August swarms of people who would not work had lost all care for life or for decency and were unmanageable. Two men, unable to stand, brought to the Dhárwár relief house by the police, were given grain sacks to cover their nakedness and were fed for two days. The second night both evaded the watchmen and left. On the second day one was found dead and naked, the other was brought in on the third day dying. He said they had sold the bags for a copper or two, and wandered round picking up refuse. They could not endure being made to live decently. This is one case out of hundreds. The people who starved at home were few compared with those who wandered. The stay-at-homes could always be found

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by inspection. The wanderers were cunning at keeping out of the way if they thought they would be put into relief houses. One Lambani girl climbed out of the Hubli relief-house over a high wall three times and was at last found dead.

The loss of farm stock during the famine to some extent hampered the carrying of grain and interfered with field work. The yearly village returns show a fall in the number of cattle from 669,408 in 1875-76 to 519,133 in 1879-80, that is a loss of 150,275 head.¹ The outstanding balances on account of the current year were £33 (Rs. 330) for 1875-76, £7242 (Rs. 72,420) for 1876-77, £4259 (Rs. 42,590) for 1877-78 and £1490 (Rs. 14,900) for 1878-79.

Rat Plague,
1879.

In October 1878 swarms of rats appeared, chiefly in the black soil tracts, and devoured a great part of the cold-weather crops. The rats continued during most of 1879, and threatened to destroy the early crops which in places had to be sown more than once. At a cost of £9517 (Rs. 95,170) nine and a half millions of rats were killed and the harvest was saved.

¹ The increase in the district stock of cattle since 1876-77 is remarkable. The details are :

Dhárwār Stock, 1876-77 and 1881-82.

	1876-77.	1881-82.	Increase over 1876-77.	Per cent.
Bullocks...	176,013	252,922	76,209	43·3
Cows	89,014	147,133	58,119	65·3
Buffaloes	89,172	128,546	39,374	44·1
Sheep and Goats..	125,871	223,556	97,685	77·6
Carts	32,442	38,714	6272	19·3